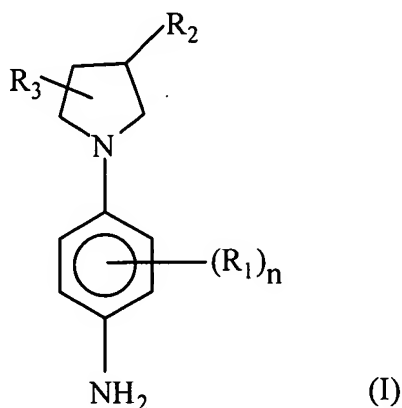


I. AMENDMENT

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A dyeing composition for dyeing keratinous fibres comprising, in an appropriate dyeing medium, at least one cationic tertiary para-phenylenediamine containing a pyrrolidine ring and at least one cationic polymer, wherein said cationic tertiary para-phenylenediamine containing a pyrrolidine ring corresponds to formula I:

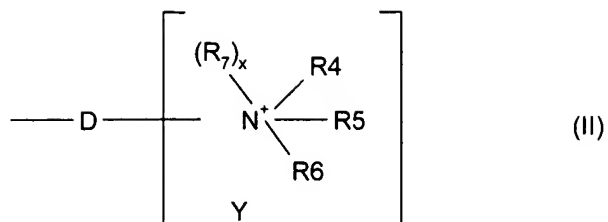


in which:

n varies from 0 to 4, it being understood that if n is greater than or equal to 2, the radicals R₁ can be identical or different;

R₁ is selected from chlorine, bromine and C₁-C₄ alkyl, C₁-C₄ hydroxyalkyl, C₁-C₄ aminoalkyl, C₁-C₄ alkoxy and C₁-C₄ hydroxyalkoxy radicals;

R₂ is the onium radical Z of formula (II):



in which:

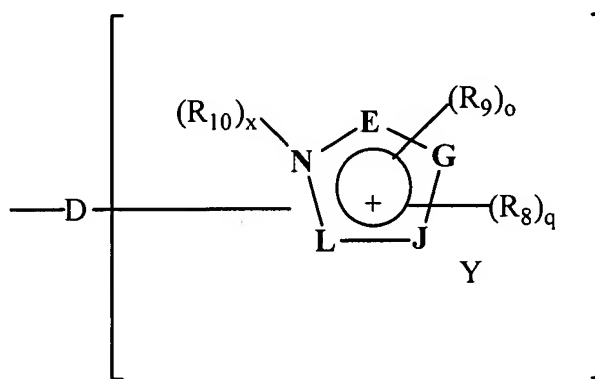
D is a single bond or a linear or branched C₁-C₁₄ alkylene chain capable of containing one or more heteroatoms selected from oxygen, sulphur and nitrogen, capable of being substituted by one or more hydroxyl, C₁-C₆ alkoxy or amino radicals and capable of carrying one or more ketone groups;

R₄, R₅ and R₆, taken separately, are a C₁-C₁₅ alkyl radical;

x is 0 and the linking arm is attached to the nitrogen atom carrying the radicals R₄ to R₆;

Y is a counterion; or

R₂ is the onium radical Z of formula III:



in which:

D is a single bond or a linear or branched C₁-C₁₄ alkylene chain capable of containing one or more heteroatoms selected from oxygen, sulphur and nitrogen, capable of being substituted by one or more hydroxyl, C₁-C₆

alkoxy or amino radicals and capable of carrying one or more ketone functional groups;

the vertices E, G, J and L form an imidazole ring;

q is an integer between 0 and 4 inclusive;

o is an integer between 0 and 3 inclusive;

q+o is an integer between 0 and 4;

the radicals R₈, which are identical or different, are a halogen atom; a hydroxyl radical; a C₁-C₆ alkyl radical; a C₁-C₆ monohydroxyalkyl radical; a C₂-C₆ polyhydroxyalkyl radical; a C₁-C₆ alkoxy radical; a C₁-C₆ trialkyl(C₁-C₆)silanalkyl radical; an amido radical; a carboxyl radical; a C₁-C₆ alkylcarbonyl radical; a thio radical; a C₁-C₆ thioalkyl radical; an alkyl(C₁-C₆)thio radical; an amino radical; an amino radical monosubstituted or disubstituted by an alkyl(C₁-C₆), alkyl(C₁-C₆)carbonyl, amido or alkyl(C₁-C₆)sulphonyl radical; a C₁-C₆ monohydroxyalkyl radical; or a C₂-C₆ polyhydroxyalkyl radical, it being understood that the radicals R₈ are carried by a carbon atom;

the radicals R₉, which are identical or different, are a C₁-C₆ alkyl radical; a C₁-C₆ monohydroxyalkyl radical; a C₂-C₆ polyhydroxyalkyl radical; a C₁-C₆ trialkyl(C₁-C₆)silanalkyl radical; a C₁-C₆ alkoxy(C₁-C₆)alkyl radical; a C₁-C₆ carbamylalkyl radical; a C₁-C₆ alkyl(C₁-C₆)carboxyalkyl radical; or a benzyl radical, it being understood that the radicals R₉ are carried by a nitrogen;

R₁₀ is a C₁-C₆ alkyl radical; a C₁-C₆ monohydroxyalkyl radical; a C₂-C₆ polyhydroxyalkyl radical; an aryl radical; a benzyl radical; a C₁-C₆ aminoalkyl radical; a C₁-C₆ aminoalkyl radical in which the amine is substituted by an alkyl(C₁-C₆), alkyl(C₁-C₆)carbonyl, amido or alkyl(C₁-C₆)sulphonyl radical; a C₁-C₆ carboxyalkyl radical; a C₁-C₆ carbamylalkyl radical; a C₁-C₆ trifluoroalkyl radical; a C₁-C₆ trialkyl(C₁-C₆)silanalkyl radical; a C₁-C₆ sulphonamidoalkyl radical; a C₁-C₆ alkyl(C₁-C₆)carboxyalkyl radical; a C₁-C₆ alkyl(C₁-C₆)sulphinylalkyl radical; a C₁-C₆ alkyl(C₁-C₆)sulphonylalkyl radical; a C₁-C₆ alkyl(C₁-C₆)carbonylalkyl radical; a C₁-C₆ N-alkyl(C₁-C₆)carbamylalkyl radical; or a C₁-C₆ N-alkyl(C₁-C₆)sulphonamidoalkyl radical;

x is 0 or 1:

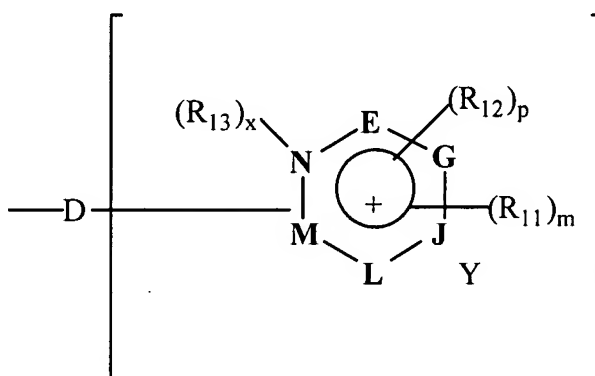
if x = 0, the linking arm D is attached to the nitrogen atom;

if x = 1, the linking arm D is attached to one of the vertices E, G, J or L;

and

Y is a counterion; or

R₂ is an onium radical Z of formula IV:



(IV)

in which:

D is a single bond or a linear or branched C₁-C₁₄ alkylene chain capable of containing one or more heteroatoms selected from oxygen, sulphur and nitrogen atoms, capable of being substituted by one or more hydroxyl, C₁-C₆ alkoxy or amino radicals and capable of carrying one or more ketone functional groups;

the vertices E, G, J, L and M form with the ring nitrogen a ring selected from pyridine and pyrimidine rings;

p is an integer between 0 and 3 inclusive;

m is an integer between 0 and 5 inclusive;

p+m is an integer between 0 and 5;

the radicals R₁₁, which are identical or different, are a halogen atom; a hydroxyl radical; a C₁-C₆ alkyl radical; a C₁-C₆ monohydroxyalkyl radical; a C₂-C₆ polyhydroxyalkyl radical; a C₁-C₆ alkoxy radical; a C₁-C₆ trialkyl(C₁-

C₆)silanalkyl radical; an amido radical; a carboxyl radical; a C₁-C₆ alkylcarbonyl radical; a thio radical; a C₁-C₆ thioalkyl radical; an alkyl(C₁-C₆)thio radical; an amino radical; an amino radical substituted by an alkyl(C₁-C₆), alkyl(C₁-C₆)carbonyl, amido or alkyl(C₁-C₆)sulphonyl radical; a C₁-C₆ monohydroxyalkyl radical; or a C₂-C₆ polyhydroxyalkyl radical, it being understood that the radicals R₁₁ are carried by a carbon atom;

the radicals R₁₂, which are identical or different, are a C₁-C₆ alkyl radical; a C₁-C₆ monohydroxyalkyl radical; a C₂-C₆ polyhydroxyalkyl radical; a C₁-C₆ trialkyl(C₁-C₆)silanalkyl radical; a C₁-C₆ alkoxy(C₁-C₆)alkyl radical; a C₁-C₆ carbamylalkyl radical; a C₁-C₆ alkyl(C₁-C₆)carboxyalkyl radical; or a benzyl radical, it being understood that the radicals R₁₂ are carried by a nitrogen;

R₁₃ is a C₁-C₆ alkyl radical; a C₁-C₆ monohydroxyalkyl radical; a C₂-C₆ polyhydroxyalkyl radical; an aryl radical; a benzyl radical; a C₁-C₆ aminoalkyl radical; a C₁-C₆ aminoalkyl radical in which the amine is monosubstituted or disubstituted by an alkyl(C₁-C₆), alkyl(C₁-C₆)carbonyl, amido or alkyl(C₁-C₆)sulphonyl radical; a C₁-C₆ carboxyalkyl radical; a C₁-C₆ carbamylalkyl radical; a C₁-C₆ trifluoroalkyl radical; a C₁-C₆ trialkyl(C₁-C₆)silanalkyl radical; a C₁-C₆ sulphonamidoalkyl radical; a C₁-C₆ alkyl(C₁-C₆)carboxyalkyl radical; a C₁-C₆ alkyl(C₁-C₆)sulphinylalkyl radical; a C₁-C₆ alkyl(C₁-C₆)sulphonylalkyl radical; a C₁-C₆ alkyl(C₁-C₆)carbonylalkyl radical; a C₁-C₆ N-alkyl(C₁-C₆)carbamylalkyl radical; or a C₁-C₆ N-alkyl(C₁-C₆)sulphonamidoalkyl radical;

x is 0 or 1;

if x = 0, the linking arm D is attached to the nitrogen atom;

if x = 1, the linking arm D is attached to one of the vertices E, G, J, L or M; and

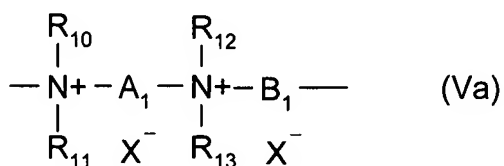
Y is a counterion; and

R₃ is a hydrogen atom or a hydroxyl radical;

and wherein said cationic polymer is chosen from:

~~guar gums containing trialkylammonium cationic units,~~

diquaternary ammonium polymers containing repeat units of formula Va:



in which formula:

R₁₀, R₁₁, R₁₂ and R₁₃, which are identical or different, represent aliphatic, alicyclic or arylaliphatic radicals containing from 1 to 6 carbon atoms or lower hydroxyalkyl aliphatic radicals, or else R₁₀, R₁₁, R₁₂ and R₁₃, together or separately, form, with the nitrogen atoms to which they are attached, heterocycles optionally containing a second heteroatom other than nitrogen, or else R₁₀, R₁₁, R₁₂ and R₁₃ denote a linear or branched C₁-C₆ alkyl radical substituted by a nitrile, ester, acyl, amide or -CO-O-R₁₄-D or -CO-NH-R₁₄-D group where R₁₄ is an alkylene and D a quaternary ammonium group;

A₁ and B₁ represent polymethylene groups containing from 2 to 20 carbon atoms which may be linear or branched, saturated or unsaturated and which may contain, bonded to or inserted into the main chain, one or more aromatic rings, or one or more oxygen or sulphur atoms or sulfoxide, sulphone, disulphide, amino, alkylamino, hydroxyl, quaternary ammonium, ureido, amide or ester groups, and

X⁻ denotes an anion derived from an inorganic or organic acid;

A₁, R₁₀ and R₁₂, with the two nitrogen atoms to which they are attached, may form a piperazine ring; in addition if A₁ denotes a saturated or unsaturated, linear or branched alkylene or hydroxyalkylene radical, B₁ may also denote a group -(CH₂)_n-CO-D-OC-(CH₂)_n- wherein D denotes:

- a) a glycol residue of formula: -O-Z-O-, where Z denotes a linear or branched hydrocarbon radical or a group corresponding to one of the following formulae:



where x and y denote an integer from 1 to 4, representing a defined and unique degree of polymerization or any number from 1 to 4 representing a mean degree of polymerization;

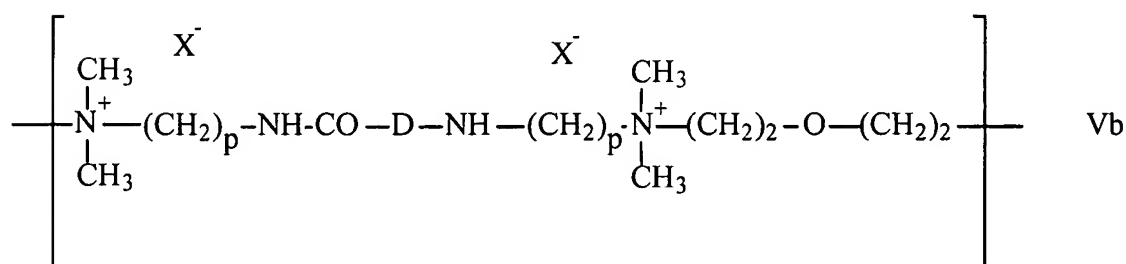
b) a disecundary diamine residue such as a piperazine derivative;

c) a diprimary diamine residue of formula: $-\text{NH}-\text{Y}-\text{NH}-$, where Y denotes a linear or branched hydrocarbon radical or else the divalent radical



d) a ureylene group of formula: $-\text{NH}-\text{CO}-\text{NH}-$,

the polyquaternary ammonium polymers consisting of repeat units of formula Vb:



in which p denotes an integer varying from 1 to 6, D may be zero or may represent a group $-(\text{CH}_2)_r-\text{CO}-$

in which r denotes a number equal to 4 or to 7, X^- is an anion;

crosslinked methacryloyloxyethyltrimethylammonium chloride homopolymers.

2. (canceled)

3. (currently amended) The composition of claim [[2]] 1, wherein the cationic tertiary para-phenylenediamine is such that n is equal to 0.

4. (currently amended) The composition of claim [[2]] 1, wherein the cationic tertiary para-phenylenediamine is such that n is equal to 1 and R_1 is chosen from the group consisting of a halogen atom; a saturated or unsaturated, aliphatic or alicyclic, C_1-C_6 hydrocarbon chain; it being possible for one or more carbon atoms to be replaced with an oxygen, nitrogen, silicon or sulphur

atom, or with an SO₂ group, the radical R₁ not containing a peroxide bond, or diazo, nitro or nitroso radicals.

5. (canceled)

6. (currently amended) The composition of claim [[5]] 1, wherein the cationic tertiary para-phenylenediamine is such that R₁ is chosen from a methyl, hydroxymethyl, 2-hydroxyethyl, 1,2-dihydroxyethyl, methoxy, isopropoxy or 2-hydroxyethoxy radical.

7. (canceled)

8. (currently amended) The composition of claim [[7]] 1, wherein the cationic tertiary para-phenylenediamine is such that R₂ corresponds to formula II wherein x is equal to 0 and R₄, R₅ and R₆ separately are preferably chosen from a C₁-C₆ alkyl radical, ~~a C₁-C₄ monohydroxyalkyl radical, a C₂-C₄ polyhydroxyalkyl radical, a (C₁-C₆)alkoxy(C₁-C₄)alkyl radical, a C₁-C₆ amidoalkyl radical, a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical, or R₄ with R₅ form together an azetidine ring, a pyrrolidine, piperidine, piperazine or morpholine ring, R₆ being chosen in this case from a C₁-C₆ alkyl radical; a C₁-C₆ monohydroxyalkyl radical, a C₂-C₆ polyhydroxyalkyl radical; a C₁-C₆ aminoalkyl radical, an aminoalkyl radical which is mono- or di-substituted with a (C₁-C₆)alkyl radical, a (C₁-C₆)alkylcarbonyl, amido or (C₁-C₆)alkylsulphonyl radical; a C₁-C₆ carbamylalkyl radical; a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical; a (C₁-C₆)alkyl carboxy(C₁-C₆)alkyl radical; a (C₁-C₆)alkylcarbonyl(C₁-C₆)alkyl radical; an N-(C₁-C₆)alkylcarbamyl(C₁-C₆)alkyl radical.~~

9-10. (canceled)

11. (currently amended) The composition of claim [[7]] 1, wherein the cationic tertiary para-phenylenediamine is such that R₂ is a trialkylammonium radical.

12-13. (canceled)

14. (currently amended) The composition of claim [[12]] 1, wherein the cationic tertiary para-phenylenediamine is such that R₂ represents the onium radical Z corresponding to formula III, x is equal to 0, and D is a single bond or an alkylene chain which may be substituted.

15-16. (canceled)

17. (currently amended) The composition of claim [[15]] 1, wherein the cationic tertiary para-phenylenediamine is such that R₂ represents the onium radical Z corresponding to formula IV, x is equal to 0, and R₁₁ is chosen from a hydroxyl radical, a C₁-C₆ alkyl radical, a C₁-C₆ monohydroxyalkyl radical, a C₂-C₆ polyhydroxyalkyl radical, a C₁-C₆ alkoxy radical, a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical, an amido radical, a C₁-C₆ alkylcarbonyl radical, an amino radical, an amino radical which is mono- or di-substituted with a (C₁-C₆)alkyl, a (C₁-C₆)alkylcarbonyl, amido or (C₁-C₆)alkylsulphonyl radical; a C₁-C₆ monohydroxyalkyl radical or a C₂-C₆ polyhydroxyalkyl radical and R₁₂ is chosen from a C₁-C₆ alkyl radical, a C₁-C₆ monohydroxyalkyl radical, a C₂-C₆ polyhydroxyalkyl radical, a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical, a (C₁-C₆)alkoxy(C₁-C₆)alkyl radical, a C₁-C₆ carbamylalkyl radical.

18. (currently amended) The composition of claim [[15]] 1, wherein the cationic tertiary para-phenylenediamine is such that R₂ represents the onium radical Z corresponding to formula IV, x is equal to 1, and R₁₃ is chosen from a C₁-C₆ alkyl radical; a C₁-C₆ monohydroxyalkyl radical; a C₂-C₆ polyhydroxyalkyl radical; a C₁-C₆ aminoalkyl radical, a C₁-C₆ aminoalkyl radical whose amine is mono- or di-substituted with a (C₁-C₆)alkyl radical, a (C₁-C₆)alkylcarbonyl radical, an amido radical, a (C₁-C₆)alkylsulphonyl radical; a C₁-C₆ carbamylalkyl radical; a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical; a (C₁-C₆)alkylcarbonyl(C₁-C₆)alkyl radical; an N-(C₁-C₆)alkylcarbamyl(C₁-C₆)alkyl radical; R₁₁ is chosen from a hydroxyl radical, a C₁-C₆ alkyl radical, a C₁-C₆ monohydroxyalkyl radical, a C₂-C₆ polyhydroxyalkyl radical, a C₁-C₆ alkoxy radical, a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical, an amido radical, a C₁-C₆ alkylcarbonyl radical, an amino radical, an amino radical which is mono- or di-substituted with a (C₁-C₆)alkyl, (C₁-C₆)alkylcarbonyl, amido or (C₁-C₆)alkylsulphonyl radical; and R₁₂ is chosen from a C₁-C₆ alkyl radical, a C₁-C₆ monohydroxyalkyl radical, a C₂-C₆ polyhydroxyalkyl radical, a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical, a (C₁-C₆)alkoxy(C₁-C₆)alkyl radical, a C₁-C₆ carbamylalkyl radical.

19. (currently amended) The composition of claim [[15]] 1, wherein the cationic tertiary para-phenylenediamine is such that R₁₁, R₁₂ and R₁₃ are alkyl radicals which may be substituted.

20-21. (canceled)

22. (currently amended) The composition of claim 1, wherein the cationic tertiary para-phenylene is chosen from the group consisting of:

[1-(4-Aminophenyl)pyrrolidin-3-yl]trimethylammonium chloride[[,]]
[1-(4-Aminophenyl)pyrrolidin-3-yl]dimethyltetradecylammonium bromide
~~N'-[1-(4-Aminophenyl)pyrrolidin-3-yl]-N,N-dimethyl-guanidium-chloride~~
~~N-[1-(4-Aminophenyl)pyrrolidin-3-yl]guanidium-chloride~~
3-[1-(4-Aminophenyl)pyrrolidin-3-yl]-1-methyl-3H-imidazol-1-ium chloride
~~[1-(4-Aminophenyl)pyrrolidin-3-yl]-(2-hydroxyethyl)dimethylammonium-chloride~~
~~[1-(4-Aminophenyl)pyrrolidin-3-yl]dimethyl-(3-trimethylsilylpropyl)ammonium chloride~~
~~[1-(4-Aminophenyl)pyrrolidin-3-yl]-(trimethylammonium-hexyl)dimethylammonium dichloride~~
~~[1-(4-Aminophenyl)pyrrolidin-3-yl]oxophosphorylcholine~~
~~{2-[1-(4-Aminophenyl)pyrrolidin-3-yloxy]ethyl}trimethylammonium chloride~~
~~1-{2-[1-(4-Aminophenyl)pyrrolidin-3-yloxy]ethyl}-1-methylpyrrolidinium-chloride~~
3-{3-[1-(4-Aminophenyl)pyrrolidin-3-yloxy]propyl}-1-methyl-3H-imidazol-1-ium chloride
~~1-{2-[1-(4-Aminophenyl)pyrrolidin-3-yloxy]ethyl}-1-methylpiperidinium-chloride~~
~~3-{3-[1-(5-trimethylsilyl-4-amino-3-trimethylsilylphenyl)pyrrolidin-3-yloxy]propyl}-1-methyl-3H-imidazol-1-ium chloride~~
[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]trimethylammonium chloride
[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]dimethyltetradecylammonium chloride
~~N'-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]-N,N-dimethyl-guanidium-chloride~~
~~N-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]guanidium-chloride~~
3-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]-1-methyl-3H-imidazol-1-ium chloride

~~[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]-(2-hydroxyethyl)dimethylammonium chloride~~
~~[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]dimethyl-(3-trimethylsilylpropyl)ammonium chloride~~
~~[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]-(trimethylammoniumhexyl)-dimethylammonium dichloride~~
~~[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]oxophosphorylcholine~~
~~{2-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yloxy]ethyl} trimethylammonium chloride~~
~~1-{2-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yloxy]ethyl}-1-methylpyrrolidinium chloride~~
~~3-{3-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yloxy]-propyl} 1-methyl-3H-imidazol-1-ium chloride~~
~~1-{2-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yloxy]ethyl}-1-methylpiperidinium chloride~~
~~[1-(4-Amino-3-trimethylsilyl-ethylphenyl)pyrrolidin-3-yl]trimethylammonium chloride~~
~~3-[1-(4-Amino-3-trimethylsilyl-ethylphenyl)pyrrolidin-3-yl]-1-methyl-3H-imidazol-1-ium chloride~~
~~3-{3-[1-(4-Amino-3-trimethylsilyl-ethylphenyl)pyrrolidin-3-yloxy]propyl}-1-methyl-3H-imidazol-1-ium chloride~~
~~[1-(5-trimethylsilyl-ethyl-4-Amino-3-trimethylsilyl-ethylphenyl)pyrrolidin-3-yl]trimethylammonium chloride~~
~~3-[1-(5-trimethylsilyl-ethyl-4-Amino-3-trimethylsilyl-ethylphenyl)pyrrolidin-3-yl]-1-methyl-3H-imidazol-1-ium chloride~~
~~1'-(4-Aminophenyl)-1-methyl-[1,3']bipyrrolidinyl-1-ium chloride~~
~~1'-(4-Amino-3-methylphenyl)-1-methyl-[1,3']bipyrrolidinyl-1-ium chloride~~
~~3-[[1-(4-Aminophenyl)pyrrolidin-3-ylcarbonyl]methyl]-1-methyl-3H-imidazol-1-ium chloride~~

3- {[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]carbamoyl]methyl}-1-methyl-3H-imidazol-1-ium chloride

3-[1-(4-Aminophenyl)pyrrolidin-3-yl]-1-(3-trimethylsilanylpropyl)-3H-imidazol-1-ium chloride

3-[1-(4-Aminophenyl)pyrrolidin-3-yl]-1-(3-trimethylsilanylpropyl)-3H-imidazol-1-ium chloride

[1-(4-aminophenyl)pyrrolidin-3-yl]ethyltrimethylammonium chloride

[1-(4-aminophenyl)pyrrolidin-3-yl]ethyltrimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]propyltrimethylammonium iodide,

[1-(4-aminophenyl)pyrrolidin-3-yl]propyltrimethylammonium bromide

[1-(4-aminophenyl)pyrrolidin-3-yl]propyltrimethylammonium methosulphate

[1-(4-aminophenyl)pyrrolidin-3-yl]butyltrimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]pentyltrimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]hexyltrimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]heptyltrimethylammonium iodide

[1-(4-Aminophenyl)pyrrolidin-3-yl]octyltrimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]decyltrimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]hexadecyltrimethylammonium iodide

~~[1-(4-aminophenyl)pyrrolidin-3-yl]hydroxyethyltrimethylammonium chloride~~

~~[1-(4-aminophenyl)pyrrolidin-3-yl]hydroxyethyltrimethylammonium iodide.~~

23. (currently amended) The composition of claim 1, wherein the cationic tertiary para-phenylene is chosen from the group consisting of:

[1-(4-Aminophenyl)pyrrolidin-3-yl]trimethylammonium chloride[;]

[1-(4-Aminophenyl)pyrrolidin-3-yl]dimethyltetradecylammonium bromide[;]

~~N'-[1-(4-Aminophenyl)pyrrolidin-3-yl]-N,N-dimethylguanidium chloride~~

~~N-[1-(4-Aminophenyl)pyrrolidin-3-yl]guanidium chloride~~
 3-[1-(4-Aminophenyl)pyrrolidin-3-yl]-1-methyl-3H-imidazol-1-ium chloride[[:]]
~~[1-(4-Aminophenyl)pyrrolidin-3-yl](2-hydroxyethyl)dimethylammonium chloride~~
~~[1-(4-Aminophenyl)pyrrolidin-3-yl]dimethyl-(3-trimethylsilanylpropyl)ammonium chloride;~~
 [1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]trimethylammonium chloride
 [1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]dimethyltetradecylammonium chloride
~~N'-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]-N,N-dimethylguanidium chloride~~
~~N-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]guanidium chloride~~
 3-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]-1-methyl-3H-imidazol-1-ium chloride
~~[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]-(2-hydroxyethyl)dimethylammonium chloride~~
~~[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]dimethyl-(3-trimethylsilanylpropyl)ammonium chloride~~
~~1'-(4-Aminophenyl)-1-methyl-[1,3']bipyrrolidinyl-1-ium chloride~~
~~1'-(4-Amino-3-methylphenyl)-1-methyl-[1,3']bipyrrolidinyl-1-ium chloride~~
 3-{{[1-(4-Aminophenyl)pyrrolidin-3-ylcarbamoyl]methyl}}-1-methyl-3H-imidazol-1-ium chloride
 3-{{[1-(4-Amino-3-methylphenyl)pyrrolidin-3-ylcarbamoyl]methyl}}-1-methyl-3H-imidazol-1-ium chloride
 3-[1-(4-Aminophenyl)pyrrolidin-3-yl]-1-(3-trimethylsilanylpropyl)-3H-imidazol-1-ium chloride
 3-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]-1-(3-trimethylsilanyl-propyl)-3H-imidazol-1-ium chloride
 [1-(4-aminophenyl)pyrrolidin-3-yl]ethyl dimethylammonium chloride
 [1-(4-aminophenyl)pyrrolidin-3-yl]ethyl dimethylammonium iodide

[1-(4-Aminophenyl)pyrrolidin-3-yl]propyldimethylammonium iodide[,]
 [1-(4-aminophenyl)pyrrolidin-3-yl]propyldimethylammonium bromide
 [1-(4-aminophenyl)pyrrolidin-3-yl]propyldimethylammonium methosulphate
 [1-(4-aminophenyl)pyrrolidin-3-yl]butyldimethylammonium iodide
 [1-(4-aminophenyl)pyrrolidin-3-yl]pentyldimethylammonium iodide
 [1-(4-aminophenyl)pyrrolidin-3-yl]hexyldimethylammonium iodide
 [1-(4-aminophenyl)pyrrolidin-3-yl]heptyldimethylammonium iodide
 [1-(4-aminophenyl)pyrrolidin-3-yl]octyldimethylammonium iodide
 [1-(4-aminophenyl)pyrrolidin-3-yl]decyldimethylammonium iodide
 [1-(4-aminophenyl)pyrrolidin-3-yl]hexadecyldimethylammonium iodide
~~[1-(4-aminophenyl)pyrrolidin-3-yl]hydroxyethyl dimethylammonium chloride~~
~~[1-(4-aminophenyl)pyrrolidin-3-yl]hydroxyethyl dimethylammonium iodide.~~

24. (currently amended) The composition of claim 1, wherein the cationic tertiary para-phenylene is chosen from the group consisting of:

[1-(4-Aminophenyl)pyrrolidin-3-yl]trimethylammonium chloride
 [1-(4-Aminophenyl)pyrrolidin-3-yl]dimethyltetradecylammonium bromide
~~N'-[1-(4-Aminophenyl)pyrrolidin-3-yl]-N,N-dimethylguanidium chloride~~
~~N-[1-(4-Aminophenyl)pyrrolidin-3-yl]guanidium chloride~~
 3-[1-(4-Aminophenyl)pyrrolidin-3-yl]-1-methyl-3H-imidazol-1-ium chloride
~~[1-(4-Aminophenyl)pyrrolidin-3-yl]-(2-hydroxyethyl)dimethylammonium chloride~~
~~[1-(4-Aminophenyl)pyrrolidin-3-yl]dimethyl-(3-trimethylsilylpropyl)ammonium chloride~~
~~[1-(4-Aminophenyl)pyrrolidin-3-yl]-(trimethylammoniumhexyl)dimethylammonium dichloride~~
~~1'-(4-Aminophenyl)-1-methyl-[1,3']bipyrrolidinyl-1-ium chloride~~

3-[1-(4-Aminophenyl)pyrrolidin-3-yl]-1-(3-trimethylsilanylpropyl)-3H-imidazol-1-ium chloride

3-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]-1-(3-trimethylsilanylpropyl)-3H-imidazol-1-ium chloride

[1-(4-aminophenyl)pyrrolidin-3-yl]ethyl dimethylammonium chloride

[1-(4-aminophenyl)pyrrolidin-3-yl]ethyl dimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]propyl dimethylammonium iodide[[,]]

[1-(4-aminophenyl)pyrrolidin-3-yl]propyl dimethylammonium bromide

[1-(4-aminophenyl)pyrrolidin-3-yl]propyl dimethylammonium methosulphate

[1-(4-aminophenyl)pyrrolidin-3-yl]butyl dimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]pentyl dimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]hexyl dimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]heptyl dimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]octyl dimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]decyl dimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]hexadecyl dimethylammonium iodide

~~[1-(4-aminophenyl)pyrrolidin-3-yl]hydroxyethyl dimethylammonium chloride~~

~~[1-(4-aminophenyl)pyrrolidin-3-yl]hydroxyethyl dimethylammonium iodide.~~

25. (currently amended) The composition of claim 1, wherein the cationic tertiary para-phenylene is chosen from the group consisting of:

[1-(4-Aminophenyl)pyrrolidin-3-yl]trimethylammonium chloride

3-[1-(4-Aminophenyl)pyrrolidin-3-yl]-1-methyl-3H-imidazol-1-ium chloride

~~[1-(4-Aminophenyl)pyrrolidin-3-yl]-(2-hydroxyethyl)dimethylammonium chloride~~

~~1'-(4-Aminophenyl)-1-methyl-[1,3']bipyrrolidinyl-1-ium chloride.~~

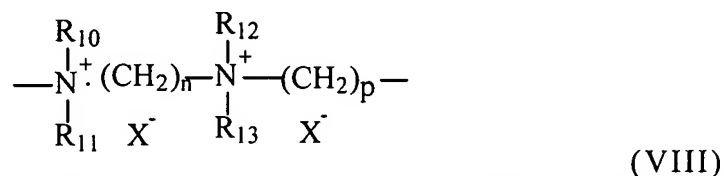
26. (currently amended) The composition of claim 1, wherein the cationic tertiary para-phenylene is ~~chosen from the group consisting of~~

[1-(4-Aminophenyl)pyrrolidin-3-yl]trimethylammonium chloride, ~~and [1-(4-Aminophenyl)pyrrolidin-3-yl]-(2-hydroxyethyl)dimethylammonium chloride.~~

27. (canceled)

28. (original) The composition of claim 1, wherein the cationic polymer is a diquaternary ammonium polymer containing repeat units of formula Va.

29. (original) The composition of claim 28, wherein the cationic polymer is a polymer consisting of repeat units of formula:



in which R₁₀, R₁₁, R₁₂ and R₁₃, which may be identical or different, denote an alkyl or hydroxyalkyl radical having from 1 to 4 carbon atoms, n and p are integers ranging from 2 to 20 and X⁻ is an anion derived from a mineral or organic acid.

30. (original) The composition of claim 1, wherein the cationic polymer is a polyquaternary ammonium polymer consisting of repeat units of formula Vb.

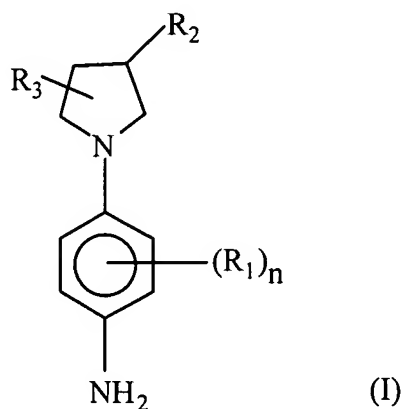
31. (currently amended) The composition of claim 1, wherein the cationic polymer(s) represent(s) from about 0.005% to about 10% ~~and preferably from 0.01% to 5%~~ by weight relative to the total weight of the composition.

32. (currently amended) The composition of claim 1, wherein the cationic tertiary para-phenylenediamine(s) having a pyrrolidine ring represent from about 0.001 to about 10%, ~~and preferably from 0.005 to 6%~~ by weight relative to the total weight of the composition.

33. (original) The composition of claim 1, wherein it additionally contains at least one additional cationic polymer.

34. (original) The composition of claim 1, wherein it additionally contains at least one thickening polymer.
35. (original) The composition of claim 1, wherein it additionally contains at least one surfactant chosen from the group consisting of anionic surfactants, amphoteric or zwitterionic surfactants, nonionic surfactants and cationic surfactants.
36. (original) The composition of claim 1, wherein it comprises at least one additional oxidation base other than cationic tertiary para-phenylenediamines having a pyrrolidine ring chosen from para-phenylenediamines, bis-phenylalkylenediamines, para-aminophenols, ortho-aminophenols, heterocyclic bases and their addition salts.
37. (currently amended) The composition of claim 36, wherein the additional oxidation base(s) are present in a quantity of between about 0.001 to about 20% by weight ~~and preferably between 0.005 and 6% by weight~~ relative to the total weight of the composition.
38. (original) The composition of claim 1, wherein it additionally comprises at least one coupler chosen from meta-phenylenediamines, meta-aminophenols, meta-diphenols, naphthalene couplers, heterocyclic couplers and their addition salts.
39. (original) The composition of claim 38, wherein the coupler is chosen from 1,3-dihydroxybenzene, 1,3-dihydroxy-2-methylbenzene, 4-chloro-1,3-dihydroxybenzene, 2,4-diamino-1-(β -hydroxyethyloxy)benzene, 2-amino-4-(β -hydroxyethylamino)-1-methoxybenzene, 1,3-diaminobenzene, 1,3-bis(2,4-diaminophenoxy)propane, 3-ureidoaniline, 3-ureido-1-dimethylaminobenzene, sesamol, 1- β -hydroxyethylamino-3,4-methylenedioxybenzene, α -naphthol, 2-methyl-1-naphthol, 6-hydroxyindole, 4-hydroxyindole, 4-hydroxy-N-methylindole, 2-amino-3-hydroxypyridine, 6-hydroxybenzomorpholine, 3,5-diamino-2,6-dimethoxypyridine, 1-N-(β -hydroxyethyl)amino-3,4-methylenedioxybenzene, 2,6-bis(β -hydroxyethylamino)toluene and their addition salts.
40. (currently amended) The composition of claim 38, wherein the coupler(s) are present in a quantity of between about 0.001 and about 20%, ~~preferably between 0.005 and 6%~~ by weight relative to the total weight of the composition.

41. (original) The composition of claim 1, wherein it additionally comprises at least one direct dye.
42. (original) The composition of claim 1, wherein it additionally comprises at least one hydroxylated solvent such as ethanol, propylene glycol, glycerol, polyol monoethers.
43. (original) The composition of claim 1, wherein it comprises an oxidizing agent chosen from hydrogen peroxide, urea peroxide, alkali metal bromates, persalts, peracids and oxidase enzymes, and preferably hydrogen peroxide.
44. (original) A method for the oxidation dyeing of keratinous fibres, characterized in that a dyeing composition as defined in claim 1 is applied to the fibres in the presence of an oxidizing agent.
45. (original) A multicompartiment device wherein the first compartment contains a dyeing composition for dyeing keratinous fibres, as defined in claim 1, and a second compartment contains an oxidizing agent.
46. (new) A dyeing composition for dyeing keratinous fibres comprising, in an appropriate dyeing medium, at least one cationic tertiary para-phenylenediamine containing a pyrrolidine ring and at least one cationic polymer, wherein said cationic tertiary para-phenylenediamine containing a pyrrolidine ring corresponds to formula I:

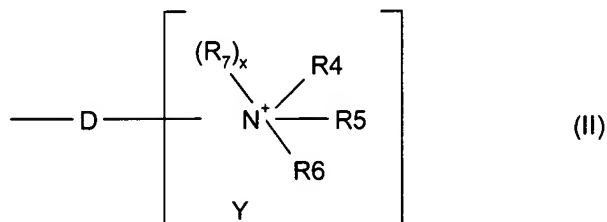


in which:

n varies from 0 to 4, it being understood that if n is greater than or equal to 2, the radicals R_1 can be identical or different;

R_1 is selected from chlorine, bromine and C_1 - C_4 alkyl, C_1 - C_4 hydroxyalkyl, C_1 - C_4 aminoalkyl, C_1 - C_4 alkoxy and C_1 - C_4 hydroxyalkoxy radicals;

R_2 is the onium radical Z of formula (II):



in which:

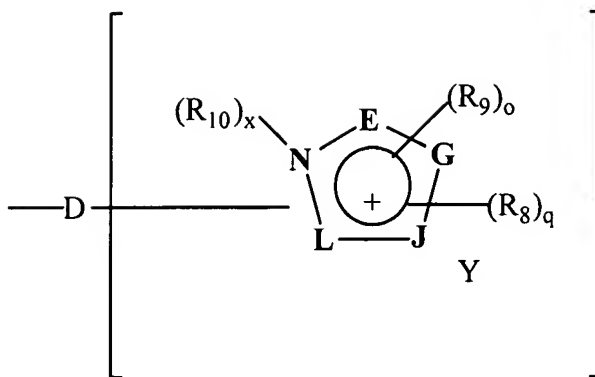
D is a single bond or a linear or branched C_1 - C_{14} alkylene chain capable of containing one or more heteroatoms selected from oxygen, sulphur and nitrogen, capable of being substituted by one or more hydroxyl, C_1 - C_6 alkoxy or amino radicals and capable of carrying one or more ketone groups;

R_4 , R_5 and R_6 , taken separately, are a C_1 - C_{15} alkyl radical;

x is 0 and the linking arm is attached to the nitrogen atom carrying the radicals R_4 to R_6 ;

Y is a counterion; or

R_2 is the onium radical Z of formula III:



(III)

in which:

D is a single bond or a linear or branched C₁-C₁₄ alkylene chain capable of containing one or more heteroatoms selected from oxygen, sulphur and nitrogen, capable of being substituted by one or more hydroxyl, C₁-C₆ alkoxy or amino radicals and capable of carrying one or more ketone functional groups;

the vertices E, G, J and L form an imidazole ring;

q is an integer between 0 and 4 inclusive;

o is an integer between 0 and 3 inclusive;

q+o is an integer between 0 and 4;

the radicals R₈, which are identical or different, are a halogen atom; a hydroxyl radical; a C₁-C₆ alkyl radical; a C₁-C₆ monohydroxyalkyl radical; a C₂-C₆ polyhydroxyalkyl radical; a C₁-C₆ alkoxy radical; a C₁-C₆ trialkyl(C₁-C₆)silanalkyl radical; an amido radical; a carboxyl radical; a C₁-C₆ alkylcarbonyl radical; a thio radical; a C₁-C₆ thioalkyl radical; an alkyl(C₁-C₆)thio radical; an amino radical; an amino radical monosubstituted or disubstituted by an alkyl(C₁-C₆), alkyl(C₁-C₆)carbonyl, amido or alkyl(C₁-C₆)sulphonyl radical; a C₁-C₆ monohydroxyalkyl radical; or a C₂-C₆ polyhydroxyalkyl radical, it being understood that the radicals R₈ are carried by a carbon atom;

the radicals R₉, which are identical or different, are a C₁-C₆ alkyl radical; a C₁-C₆ monohydroxyalkyl radical; a C₂-C₆ polyhydroxyalkyl radical; a C₁-C₆

trialkyl(C₁-C₆)silanalkyl radical; a C₁-C₆ alkoxy(C₁-C₆)alkyl radical; a C₁-C₆ carbamylalkyl radical; a C₁-C₆ alkyl(C₁-C₆)carboxyalkyl radical; or a benzyl radical, it being understood that the radicals R₉ are carried by a nitrogen;

R₁₀ is a C₁-C₆ alkyl radical; a C₁-C₆ monohydroxyalkyl radical; a C₂-C₆ polyhydroxyalkyl radical; an aryl radical; a benzyl radical; a C₁-C₆ aminoalkyl radical; a C₁-C₆ aminoalkyl radical in which the amine is substituted by an alkyl(C₁-C₆), alkyl(C₁-C₆)carbonyl, amido or alkyl(C₁-C₆)sulphonyl radical; a C₁-C₆ carboxyalkyl radical; a C₁-C₆ carbamylalkyl radical; a C₁-C₆ trifluoroalkyl radical; a C₁-C₆ trialkyl(C₁-C₆)silanalkyl radical; a C₁-C₆ sulphonamidoalkyl radical; a C₁-C₆ alkyl(C₁-C₆)carboxyalkyl radical; a C₁-C₆ alkyl(C₁-C₆)sulphinylalkyl radical; a C₁-C₆ alkyl(C₁-C₆)sulphonylalkyl radical; a C₁-C₆ alkyl(C₁-C₆)carbonylalkyl radical; a C₁-C₆ N-alkyl(C₁-C₆)carbamylalkyl radical; or a C₁-C₆ N-alkyl(C₁-C₆)sulphonamidoalkyl radical;

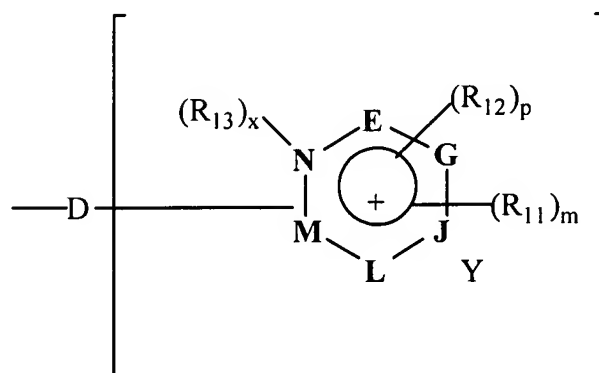
x is 0 or 1:

if x = 0, the linking arm D is attached to the nitrogen atom;

if x = 1, the linking arm D is attached to one of the vertices E, G, J or L;
and

Y is a counterion; or

R₂ is an onium radical Z of formula IV:



(IV)

in which:

D is a single bond or a linear or branched C₁-C₁₄ alkylene chain capable of containing one or more heteroatoms selected from oxygen, sulphur and nitrogen atoms, capable of being substituted by one or more hydroxyl, C₁-C₆ alkoxy or amino radicals and capable of carrying one or more ketone functional groups;

the vertices E, G, J, L and M form with the ring nitrogen a ring selected from pyridine and pyrimidine rings;

p is an integer between 0 and 3 inclusive;

m is an integer between 0 and 5 inclusive;

p+m is an integer between 0 and 5;

the radicals R₁₁, which are identical or different, are a halogen atom; a hydroxyl radical; a C₁-C₆ alkyl radical; a C₁-C₆ monohydroxyalkyl radical; a C₂-C₆ polyhydroxyalkyl radical; a C₁-C₆ alkoxy radical; a C₁-C₆ trialkyl(C₁-C₆)silanalkyl radical; an amido radical; a carboxyl radical; a C₁-C₆ alkylcarbonyl radical; a thio radical; a C₁-C₆ thioalkyl radical; an alkyl(C₁-C₆)thio radical; an amino radical; an amino radical substituted by an alkyl(C₁-C₆), alkyl(C₁-C₆)carbonyl, amido or alkyl(C₁-C₆)sulphonyl radical; a C₁-C₆ monohydroxyalkyl radical; or a C₂-C₆ polyhydroxyalkyl radical, it being understood that the radicals R₁₁ are carried by a carbon atom;

the radicals R₁₂, which are identical or different, are a C₁-C₆ alkyl radical; a C₁-C₆ monohydroxyalkyl radical; a C₂-C₆ polyhydroxyalkyl radical; a C₁-C₆ trialkyl(C₁-C₆)silanalkyl radical; a C₁-C₆ alkoxy(C₁-C₆)alkyl radical; a C₁-C₆ carbamylalkyl radical; a C₁-C₆ alkyl(C₁-C₆)carboxyalkyl radical; or a benzyl radical, it being understood that the radicals R₁₂ are carried by a nitrogen;

R₁₃ is a C₁-C₆ alkyl radical; a C₁-C₆ monohydroxyalkyl radical; a C₂-C₆ polyhydroxyalkyl radical; an aryl radical; a benzyl radical; a C₁-C₆ aminoalkyl radical; a C₁-C₆ aminoalkyl radical in which the amine is monosubstituted or disubstituted by an alkyl(C₁-C₆), alkyl(C₁-C₆)carbonyl, amido or alkyl(C₁-C₆)sulphonyl radical; a C₁-C₆ carboxyalkyl radical; a C₁-C₆ carbamylalkyl radical; a C₁-C₆ trifluoroalkyl

radical; a C₁-C₆ trialkyl(C₁-C₆)silanalkyl radical; a C₁-C₆ sulphonamidoalkyl radical; a C₁-C₆ alkyl(C₁-C₆)carboxyalkyl radical; a C₁-C₆ alkyl(C₁-C₆)sulphanylalkyl radical; a C₁-C₆ alkyl(C₁-C₆)sulphonylalkyl radical; a C₁-C₆ alkyl(C₁-C₆)carbonylalkyl radical; a C₁-C₆ N-alkyl(C₁-C₆)carbamylalkyl radical; or a C₁-C₆ N-alkyl(C₁-C₆)sulphonamidoalkyl radical;

x is 0 or 1:

if x = 0, the linking arm D is attached to the nitrogen atom;

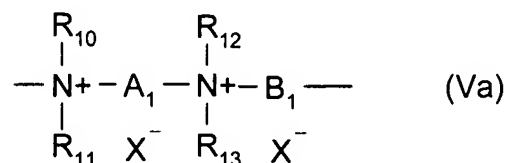
if x = 1, the linking arm D is attached to one of the vertices E, G, J, L or M; and

Y is a counterion; and

R₃ is a hydrogen atom or a hydroxyl radical;

and wherein said cationic polymer is chosen from:

diquaternary ammonium polymers containing repeat units of formula Va:



in which formula:

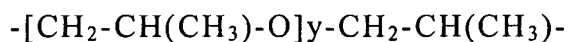
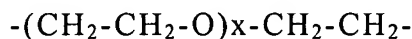
R₁₀, R₁₁, R₁₂ and R₁₃, which are identical or different, represent aliphatic, alicyclic or arylaliphatic radicals containing from 1 to 6 carbon atoms or lower hydroxyalkyl aliphatic radicals, or else R₁₀, R₁₁, R₁₂ and R₁₃, together or separately, form, with the nitrogen atoms to which they are attached, heterocycles optionally containing a second heteroatom other than nitrogen, or else R₁₀, R₁₁, R₁₂ and R₁₃ denote a linear or branched C₁-C₆ alkyl radical substituted by a nitrile, ester, acyl, amide or -CO-O-R₁₄-D or -CO-NH-R₁₄-D group where R₁₄ is an alkylene and D a quaternary ammonium group;

A_1 and B_1 represent polymethylene groups containing from 2 to 20 carbon atoms which may be linear or branched, saturated or unsaturated and which may contain, bonded to or inserted into the main chain, one or more aromatic rings, or one or more oxygen or sulphur atoms or sulfoxide, sulphone, disulphide, amino, alkylamino, hydroxyl, quaternary ammonium, ureido, amide or ester groups, and

X^- denotes an anion derived from an inorganic or organic acid;

A_1 , R_{10} and R_{12} , with the two nitrogen atoms to which they are attached, may form a piperazine ring; in addition if A_1 denotes a saturated or unsaturated, linear or branched alkylene or hydroxyalkylene radical, B_1 may also denote a group $-(CH_2)_n-CO-D-OC-(CH_2)_n-$ wherein D denotes:

a) a glycol residue of formula: $-O-Z-O-$, where Z denotes a linear or branched hydrocarbon radical or a group corresponding to one of the following formulae:



where x and y denote an integer from 1 to 4, representing a defined and unique degree of polymerization or any number from 1 to 4 representing a mean degree of polymerization;

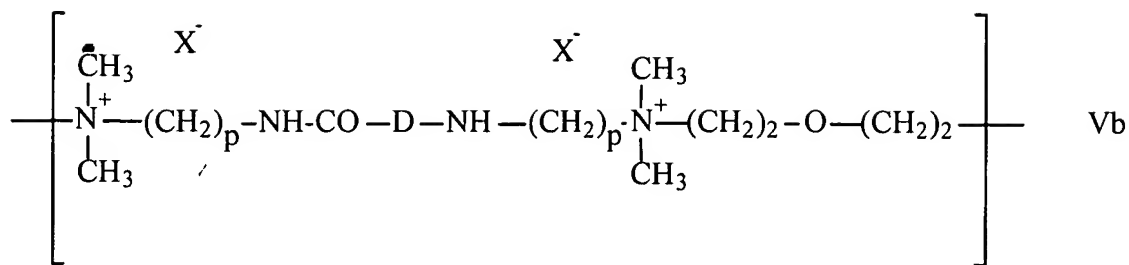
b) a disecundary diamine residue such as a piperazine derivative;

c) a diprimary diamine residue of formula: $-NH-Y-NH-$, where Y denotes a linear or branched hydrocarbon radical or else the divalent radical



d) a ureylene group of formula: $-NH-CO-NH-$,

the polyquaternary ammonium polymers consisting of repeat units of formula Vb:



in which p denotes an integer varying from 1 to 6, D may be zero or may represent a group $-(\text{CH}_2)_r\text{-CO-}$

in which r denotes a number equal to 4 or to 7, X^- is an anion.

47. (new) The composition of claim 46, wherein the cationic tertiary para-phenylenediamine is such that n is equal to 0.

48. (new) The composition of claim 46, wherein the cationic tertiary para-phenylenediamine is such that n is equal to 1.

49. (new) The composition of claim 46, wherein the cationic tertiary para-phenylenediamine is such that R_1 is chosen from a methyl, hydroxymethyl, 2-hydroxyethyl, 1,2-dihydroxyethyl, methoxy, isopropoxy or 2-hydroxyethoxy radical.

50. (new) The composition of claim 46, wherein the cationic tertiary para-phenylenediamine is such that R_2 corresponds to formula II wherein x is equal to 0 and R_4 , R_5 and R_6 separately are preferably chosen from a $\text{C}_1\text{-C}_6$ alkyl radical.

51. (new) The composition of claim 46, wherein the cationic tertiary para-phenylenediamine is such that R_2 is a trialkylammonium radical.

52. (new) The composition of claim 46, wherein the cationic tertiary para-phenylenediamine is such that R_2 represents the onium radical Z corresponding to formula III, x is equal to 0, and D is a single bond or an alkylene chain which may be substituted.

53. (new) The composition of claim 46, wherein the cationic tertiary para-phenylenediamine is such that R_2 represents the onium radical Z corresponding to formula IV, x is equal to 0, and R_{11} is chosen from a hydroxyl radical, a $\text{C}_1\text{-C}_6$ alkyl radical, a $\text{C}_1\text{-C}_6$ monohydroxyalkyl radical, a $\text{C}_2\text{-C}_6$ polyhydroxyalkyl radical, a $\text{C}_1\text{-C}_6$ alkoxy radical, a $\text{tri}(\text{C}_1\text{-C}_6)\text{alkylsilane}(\text{C}_1\text{-C}_6)\text{alkyl}$

radical, an amido radical, a C₁-C₆ alkylcarbonyl radical, an amino radical, an amino radical which is mono- or di-substituted with a (C₁-C₆)alkyl, a (C₁-C₆)alkylcarbonyl, amido or (C₁-C₆)alkylsulphonyl radical; a C₁-C₆ monohydroxyalkyl radical or a C₂-C₆ polyhydroxyalkyl radical and R₁₂ is chosen from a C₁-C₆ alkyl radical, a C₁-C₆ monohydroxyalkyl radical, a C₂-C₆ polyhydroxyalkyl radical, a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical, a (C₁-C₆)alkoxy(C₁-C₆)alkyl radical, a C₁-C₆ carbamylalkyl radical.

54. (new) The composition of claim 46, wherein the cationic tertiary para-phenylenediamine is such that R₂ represents the onium radical Z corresponding to formula IV, x is equal to 1, and R₁₃ is chosen from a C₁-C₆ alkyl radical; a C₁-C₆ monohydroxyalkyl radical; a C₂-C₆ polyhydroxyalkyl radical; a C₁-C₆ aminoalkyl radical, a C₁-C₆ aminoalkyl radical whose amine is mono- or di-substituted with a (C₁-C₆)alkyl radical, a (C₁-C₆)alkylcarbonyl radical, an amido radical, a (C₁-C₆)alkylsulphonyl radical; a C₁-C₆ carbamylalkyl radical; a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical; a (C₁-C₆)alkylcarbonyl(C₁-C₆)alkyl radical; an N-(C₁-C₆)alkylcarbamyl(C₁-C₆)alkyl radical; R₁₁ is chosen from a hydroxyl radical, a C₁-C₆ alkyl radical, a C₁-C₆ monohydroxyalkyl radical, a C₂-C₆ polyhydroxyalkyl radical, a C₁-C₆ alkoxy radical, a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical, an amido radical, a C₁-C₆ alkylcarbonyl radical, an amino radical, an amino radical which is mono- or di- substituted with a (C₁-C₆)alkyl, (C₁-C₆)alkylcarbonyl, amido or (C₁-C₆)alkylsulphonyl radical; and R₁₂ is chosen from a C₁-C₆ alkyl radical, a C₁-C₆ monohydroxyalkyl radical, a C₂-C₆ polyhydroxyalkyl radical, a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical, a (C₁-C₆)alkoxy(C₁-C₆)alkyl radical, a C₁-C₆ carbamylalkyl radical.

55. (new) The composition of claim 46, wherein the cationic tertiary para-phenylenediamine is such that R₁₁, R₁₂ and R₁₃ are alkyl radicals which may be substituted.

56. (new) The composition of claim 46, wherein the cationic tertiary para-phenylene is chosen from the group consisting of:

[1-(4-Aminophenyl)pyrrolidin-3-yl]trimethylammonium chloride

[1-(4-Aminophenyl)pyrrolidin-3-yl]dimethyltetradecylammonium bromide

3-[1-(4-Aminophenyl)pyrrolidin-3-yl]-1-methyl-3H-imidazol-1-ium chloride

{2-[1-(4-Aminophenyl)pyrrolidin-3-yloxy]ethyl}trimethylammonium chloride
 3-{3-[1-(4-Aminophenyl)pyrrolidin-3-yloxy]propyl}-1-methyl-3H-imidazol-1-ium
 chloride
 [1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]trimethylammonium chloride
 [1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]dimethyltetradecylammonium chloride
 3-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]-1-methyl-3H-imidazol-1-ium chloride
 {2-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yloxy]ethyl}trimethylammonium chloride
 3-{3-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yloxy]-propyl} 1-methyl-3H-imidazol-1-
 um chloride
 3-[[1-(4-Aminophenyl)pyrrolidin-3-ylcarbamoyl]methyl]-1-methyl-3H-imidazol-1-ium
 chloride
 3-[[1-(4-Amino-3-methylphenyl)pyrrolidin-3-ylcarbamoyl]methyl]-1-methyl-3H-
 imidazol-1-ium chloride
 3-[1-(4-Aminophenyl)pyrrolidin-3-yl]-1-(3-trimethylsilylpropyl)-3H-imidazol-1-ium
 chloride
 3-[1-(4-Aminophenyl)pyrrolidin-3-yl]-1-(3-trimethylsilylpropyl)-3H-imidazol-1-ium
 chloride
 [1-(4-aminophenyl)pyrrolidin-3-yl]ethyldimethylammonium chloride
 [1-(4-aminophenyl)pyrrolidin-3-yl]ethyldimethylammonium iodide
 [1-(4-aminophenyl)pyrrolidin-3-yl]propyldimethylammonium iodide,
 [1-(4-aminophenyl)pyrrolidin-3-yl]propyldimethylammonium bromide
 [1-(4-aminophenyl)pyrrolidin-3-yl]propyldimethylammonium methosulphate
 [1-(4-aminophenyl)pyrrolidin-3-yl]butyldimethylammonium iodide
 [1-(4-aminophenyl)pyrrolidin-3-yl]pentyldimethylammonium iodide
 [1-(4-aminophenyl)pyrrolidin-3-yl]hexyldimethylammonium iodide
 [1-(4-aminophenyl)pyrrolidin-3-yl]heptyldimethylammonium iodide

[1-(4-Aminophenyl)pyrrolidin-3-yl]octyldimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]decyldimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]hexadecyldimethylammonium iodide.

57. (new) The composition of claim 46, wherein the cationic tertiary para-phenylene is chosen from the group consisting of:

[1-(4-Aminophenyl)pyrrolidin-3-yl]trimethylammonium chloride

[1-(4-Aminophenyl)pyrrolidin-3-yl]dimethyltetradecylammonium bromide

3-[1-(4-Aminophenyl)pyrrolidin-3-yl]-1-methyl-3H-imidazol-1-ium chloride

[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]trimethylammonium chloride

[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]dimethyltetradecylammonium chloride

3-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]-1-methyl-3H-imidazol-1-ium chloride

3-{{1-(4-Aminophenyl)pyrrolidin-3-ylcarbamoyl}methyl}-1-methyl-3H-imidazol-1-ium chloride

3-{{1-(4-Amino-3-methylphenyl)pyrrolidin-3-ylcarbamoyl}methyl}-1-methyl-3H-imidazol-1-ium chloride

3-[1-(4-Aminophenyl)pyrrolidin-3-yl]-1-(3-trimethylsilylpropyl)-3H-imidazol-1-ium chloride

3-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]-1-(3-trimethylsilylpropyl)-3H-imidazol-1-ium chloride

[1-(4-aminophenyl)pyrrolidin-3-yl]ethyldimethylammonium chloride

[1-(4-aminophenyl)pyrrolidin-3-yl]ethyldimethylammonium iodide

[1-(4-Aminophenyl)pyrrolidin-3-yl]propyldimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]propyldimethylammonium bromide

[1-(4-aminophenyl)pyrrolidin-3-yl]propyldimethylammonium methosulphate

[1-(4-aminophenyl)pyrrolidin-3-yl]butyldimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]pentyldimethylammonium iodide
 [1-(4-aminophenyl)pyrrolidin-3-yl]hexyldimethylammonium iodide
 [1-(4-aminophenyl)pyrrolidin-3-yl]heptyldimethylammonium iodide
 [1-(4-aminophenyl)pyrrolidin-3-yl]octyldimethylammonium iodide
 [1-(4-aminophenyl)pyrrolidin-3-yl]decyldimethylammonium iodide
 [1-(4-aminophenyl)pyrrolidin-3-yl]hexadecyldimethylammonium iodide.

58. (new) The composition of claim 46, wherein the cationic tertiary para-phenylene is chosen from the group consisting of:

[1-(4-Aminophenyl)pyrrolidin-3-yl]trimethylammonium chloride
 [1-(4-Aminophenyl)pyrrolidin-3-yl]dimethyltetradecylammonium bromide
 3-[1-(4-Aminophenyl)pyrrolidin-3-yl]-1-methyl-3H-imidazol-1-ium chloride
 3-[1-(4-Aminophenyl)pyrrolidin-3-yl]-1-(3-trimethylsilanylpropyl)-3H-imidazol-1-ium chloride
 3-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]-1-(3-trimethylsilanylpropyl)-3H-imidazol-1-ium chloride
 [1-(4-aminophenyl)pyrrolidin-3-yl]ethyldimethylammonium chloride
 [1-(4-aminophenyl)pyrrolidin-3-yl]ethyldimethylammonium iodide
 [1-(4-aminophenyl)pyrrolidin-3-yl]propyldimethylammonium iodide[[,]]
 [1-(4-aminophenyl)pyrrolidin-3-yl]propyldimethylammonium bromide
 [1-(4-aminophenyl)pyrrolidin-3-yl]propyldimethylammonium methosulphate
 [1-(4-aminophenyl)pyrrolidin-3-yl]butyldimethylammonium iodide
 [1-(4-aminophenyl)pyrrolidin-3-yl]pentyldimethylammonium iodide
 [1-(4-aminophenyl)pyrrolidin-3-yl]hexyldimethylammonium iodide
 [1-(4-aminophenyl)pyrrolidin-3-yl]heptyldimethylammonium iodide
 [1-(4-aminophenyl)pyrrolidin-3-yl]octyldimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]decyldimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]hexadecyldimethylammonium iodide.

59. (new) The composition of claim 46, wherein the cationic tertiary para-phenylene is chosen from the group consisting of:

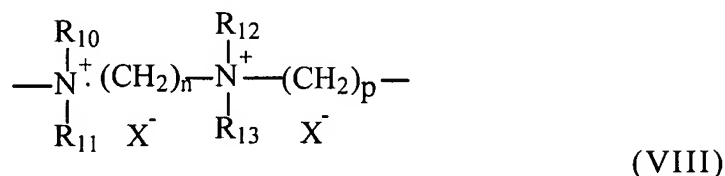
[1-(4-Aminophenyl)pyrrolidin-3-yl]trimethylammonium chloride

3-[1-(4-Aminophenyl)pyrrolidin-3-yl]-1-methyl-3H-imidazol-1-ium chloride.

60. (new) The composition of claim 46, wherein the cationic tertiary para-phenylene is [1-(4-Aminophenyl)pyrrolidin-3-yl]trimethylammonium chloride.

61. (new) The composition of claim 46, wherein the cationic polymer is a diquaternary ammonium polymer containing repeat units of formula Va.

62 (new) The composition of claim 61, wherein the cationic polymer is a polymer consisting of repeat units of formula:



in which R₁₀, R₁₁, R₁₂ and R₁₃, which may be identical or different, denote an alkyl or hydroxyalkyl radical having from 1 to 4 carbon atoms, n and p are integers ranging from 2 to 20 and X⁻ is an anion derived from a mineral or organic acid.

63. (new) The composition of claim 46, wherein the cationic polymer is a polyquaternary ammonium polymer consisting of repeat units of formula Vb.

64. (new) The composition of claim 46, wherein the cationic polymer(s) represent(s) from about 0.005% to about 10% by weight relative to the total weight of the composition.

65. (new) The composition of claim 46, wherein the cationic tertiary para-phenylenediamine(s) having a pyrrolidine ring represent from about 0.001 to about 10% by weight relative to the total weight of the composition.

66. (new) The composition of claim 46, wherein it additionally contains at least one additional cationic polymer.
67. (new) The composition of claim 46, wherein it additionally contains at least one thickening polymer.
68. (new) The composition of claim 46, wherein it additionally contains at least one surfactant chosen from the group consisting of anionic surfactants, amphoteric or zwitterionic surfactants, nonionic surfactants and cationic surfactants.
69. (new) The composition of claim 46, wherein it comprises at least one additional oxidation base other than cationic tertiary para-phenylenediamines having a pyrrolidine ring chosen from para-phenylenediamines, bis-phenylalkylenediamines, para-aminophenols, ortho-aminophenols, heterocyclic bases and their addition salts.
70. (new) The composition of claim 69, wherein the additional oxidation base(s) are present in a quantity of between about 0.001 to about 20% by weight relative to the total weight of the composition.
71. (new) The composition of claim 46, wherein it additionally comprises at least one coupler chosen from meta-phenylenediamines, meta-aminophenols, meta-diphenols, naphthalene couplers, heterocyclic couplers and their addition salts.
72. (new) The composition of claim 71, wherein the coupler is chosen from 1,3-dihydroxybenzene, 1,3-dihydroxy-2-methylbenzene, 4-chloro-1,3-dihydroxybenzene, 2,4-diamino-1-(β -hydroxyethyloxy)benzene, 2-amino-4-(β -hydroxyethylamino)-1-methoxybenzene, 1,3-diaminobenzene, 1,3-bis(2,4-diaminophenoxy)propane, 3-ureidoaniline, 3-ureido-1-dimethylaminobenzene, sesamol, 1- β -hydroxyethylamino-3,4-methylenedioxybenzene, α -naphthol, 2-methyl-1-naphthol, 6-hydroxyindole, 4-hydroxyindole, 4-hydroxy-N-methylindole, 2-amino-3-hydroxypyridine, 6-hydroxybenzomorpholine, 3,5-diamino-2,6-dimethoxypyridine, 1-N-(β -hydroxyethyl)amino-3,4-methylenedioxybenzene, 2,6-bis(β -hydroxyethylamino)toluene and their addition salts.

73. (new) The composition of claim 71, wherein the coupler(s) are present in a quantity of between about 0.001 and about 20% by weight relative to the total weight of the composition.

74. (new) The composition of claim 46, wherein it additionally comprises at least one direct dye.

75. (new) The composition of claim 46, wherein it additionally comprises at least one hydroxylated solvent such as ethanol, propylene glycol, glycerol, polyol monoethers.

76. (new) The composition of claim 46, wherein it comprises an oxidizing agent chosen from hydrogen peroxide, urea peroxide, alkali metal bromates, persalts, peracids and oxidase enzymes, and preferably hydrogen peroxide.

77. (new) A method for the oxidation dyeing of keratinous fibres, characterized in that a dyeing composition as defined in claim 46 is applied to the fibres in the presence of an oxidizing agent.

78. (new) A multicompartiment device wherein the first compartment contains a dyeing composition for dyeing keratinous fibres, as defined in claim 46, and a second compartment contains an oxidizing agent.

II. RESPONSE TO OFFICE ACTION

A. Status of the Claims

Claims 1-45 were pending at the time of the Action. Claims 1-8, 10-11, and 22-45 stand rejected, and claims 9 and 12-21 are objected to. Claims 2, 5, 7, 9-10, 12-13, 15-16, 20-21, and 27 have been canceled, claims 1, 3-4, 6, 8, 11, 14, 17-19, 22-26, 31-32, 37, and 40 have been amended in the Amendment contained herein, and claims 46-78 have been added. No new matter is added by the Amendment and new claims, and support for the Amendment and new claims can be found in the specification and claims as originally filed. Therefore, claims 1, 3-4, 6, 8, 11, 14, 17-19, 22-26, and 28-78 are pending after entry of the Amendment.

B. The Obviousness Rejections Are Overcome

1. The Standard for Establishing a Prima Facie Case of Obviousness

It is well settled that “[t]he examiner bears the initial burden of factually supporting any *prima facie* case of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.” MPEP § 2142.

To establish a *prima facie* case of obviousness, the Action must show: (1) some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; (2) a reasonable expectation of success; and (3) the prior art reference teaches or suggests all of the claim limitations. *See In re Vaeck*, 947 F.2d 488, (Fed Cir. 1991). With respect to element (1), “[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.” MPEP § 2143.01. If any one of the three elements is missing, an obviousness rejection cannot be maintained.

2. Claims 1-8, 10-11, and 22-45 Are Not Obvious Over Lim in View of Cottard

Claims 1-8, 10-11, and 22-45 are rejected as obvious over Lim et al. (US 6,461,391) (“Lim”) in view of Cottard et al. (US 6,436,151) (“Cottard”). The Action alleges that Lim teaches all of the elements of the rejected claims except for the specific cationic polymers recited in the claims. The Action asserts that the deficient teachings of Lim are supplied by the teachings of Cottard. Applicants traverse.

When obviousness is based on the teachings of multiple prior art references, the Action must establish some “suggestion, teaching, or motivation” that would have led a person of ordinary skill in the art to combine the relevant prior art teachings in the manner claimed. *See Tech Air, Inc. v. Denso Mfg. Mich, Inc.*, 192 F.3d 1353, 1358-60 (Fed. Cir. 1999); *Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1572 (Fed. Cir. 1996). As stated by the Federal Circuit, “Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.” *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999). This is because “[c]ombining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor’s disclosure as a blueprint of piecing together the prior art to defeat patentability—the essence of hindsight.” *Id.*

Thus, it has been consistently held that a person of ordinary skill in the art must not only have had some motivation to combine the prior art teachings, but some motivation to combine the prior art teaching in the particular manner claimed. *See, e.g., In re Kotzab*, 217 F.3d 1365, 1371 (Fed. Cir. 2000). Therefore, “particular finding must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed.” *Id.* “In other words, the examiner must show reasons that

the skilled artisan, confronted with the same problems as the inventor and with the knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed.” *In re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998).

Applicants respectfully assert that a person of ordinary skill in the art would have had no reason, suggestion, or motivation to combine Lim and Cottard in the manner claimed. As stated in M.P.E.P. § 2143.01: “The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.” Any attempt to combine Lim and Cottard in the particular manner claimed would clearly be a product of hindsight reconstruction, which has been expressly forbidden by the Federal Circuit.

As described in the present specification, the subject matter of the present claims involves obtaining compositions for dyeing keratinous fibers capable of overcoming the disadvantages linked to the use of cationic tertiary para-phenylenediamines containing a pyrrolidine ring in an oxidation dyeing composition and, in particular, of leading to colorations with shades which are varied, chromatic, intense, aesthetic, not very selective, and which withstand well the various attacks to which the fibers may be subjected (page 3, lines 26-36). These technical problems have been solved by using in a dyeing composition at least one particular cationic para-phenylenediamine containing a pyrrolidine ring and at least one specific cationic polymer.

Lim discloses quaternized pyrrolidine compounds of formula (I), which are said to be suitable primary intermediates for hair coloring compositions and systems for providing good oxidative coloration of hair and for providing acceptable light fastness and fastness to shampooing and to permanent wave treatment, in addition to providing a wide range variety of different color shades with various combinations of primary intermediates and coupler

compounds. Lim also mentions that the hair coloring compositions comprising quaternary pyrrolidine compounds may also contain additive ingredients such as solvent, anionic and non ionic surfactants, thickeners, alkalizing agents, conditioners which may be cationic, amphoteric, or zwitterionic materials.

Lim only discloses the use of cationic polymers in hair coloring compositions as conditioner compounds in order to improve the cosmetic properties of hair and not in order to improve the tinctorials properties of the compounds as described in the present specification. Furthermore, cationic polymers are only mentioned in Lim in a very long list of cosmetic additives.

Cottard deals with a ready-to-use cosmetic composition for oxidizing dyeing keratin fibers comprising, in a dyeing medium,

- at least one oxidation dye,
- at least one thickening polymer comprising at least one fatty chain,
- at least one fatty alcohol comprising more than twenty carbon atoms, and
- at least one oxidizing agent.

Cottard mentions further that the ready-to-use cosmetic composition may comprise a cationic or an amphoteric polymer in order to improve the cosmetic properties of hair (*see* col. 14, lines 1-2).

Cottard discloses that cationic polymers may be used in hair coloring compositions for improving the cosmetic properties of hair and not for enhancing the tinctorials properties of the compositions as they do in the present specification. In particular, Cottard does not teach that the use of specific cationic polymers can overcome the disadvantages linked to the use of specific

cationic tertiary para-phenylenediamines containing a pyrrolidine ring in a hair coloring composition in terms of shades, chromaticity, intensity, and selectivity.

Therefore, a person of ordinary skill in the art would not have been motivated to incorporate specific cationic polymers, which are only mentioned generally in Lim as conditioner components in order to improve the cosmetic properties of hair, in a hair dyeing composition disclosed in Lim in order to improve its tinctorials properties. Furthermore, Cottard describes fourteen different families of cationic polymers which may be used in hair dyeing compositions in order to improve the cosmetic properties of hair. A person of ordinary skill in the art would not have been motivated to choose the specific cationic polymers recited in the present claims among the vast spectrum of cationic polymers disclosed in Cottard.

To achieve what the inventors have done (i.e., to obtain the compositions of the present claims), one of ordinary skill in the art would have had to:

- substitute the cationic tertiary para-phenylenediamine of formula (I) of Lim with the cationic tertiary para-phenylenediamine of Formula I of the present claims;
- introduce a cationic polymer in order to improve the tinctorials properties of the hair coloring compositions even though it is mentioned in both Lim and Cottard that cationic polymers are used only in order to improve cosmetic properties of hair; and
- choose only the specific cationic polymers as claimed among the fourteen different families of cationic polymers disclosed in Cottard.

A person of ordinary skill in the art would not have been motivated to carry out these steps. The combination of Lim and Cottard is clearly the product of hindsight reconstruction, which is not an acceptable basis for establishing a *prima facie* case of obviousness.

For at least these reasons, claims 1-8, 10-11, and 22-45 are not obvious over Lim in view of Cottard.

C. Claims 46-78 Are Allowable

New claims 46-78 are identical to pending claims 1, 3-4, 6, 8, 11, 14, 17-19, 22-26, and 28-45, with the exception that claims 46-78 do not recite “crosslinked methacryloyloxyethyltrimethylammonium chloride homopolymers,” as recited at the end of claim 1. Thus, all of the arguments above for claims 1-8, 10-11, and 22-45 with regard to the combination of Lim and Cottard apply equally in force to claims 46-78, and applicants submit that claims 46-78 are in condition for allowance.

D. Conclusion

Applicants believe that the present document is a full and complete response to the Office Action dated August 11, 2005. The present case is in condition for allowance, and such favorable action is respectfully requested.